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CONFLICTS OVER LAND AND WATER RESOURCES IN THE KILOMBERO VALLEY FLOODPLAIN, TANZANIA

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ABSTRACT The Kilombero Valley floodplain (KVFP) inhabits a very large natural wetland of which over 70% is protected. Diverse mammals, amphibians, fish and bird species populate the area. Importantly, KVFP harbours 75% of the world Puku antelope population. Most human activities in the area include large and small scale farming, pastoralism and fishing. Recently, population pressure, overgrazing and aligned human activities have pressed strain on the land and water resources in the KVFP. The situation prompted the government of Tanzania to resettle some of the pastoral families so as to achieve sustainable natural resources management. The paper provides an insight of this resettlement exercise as a multi-layered land use conflict and its effects to the land resources and people's livelihoods. Focused group discussions, key informant interviews both using checklists and literature review were the methods used for data collection. The Sukuma agro-pastoralists, Maasai and Barbaig pastoralists were the most ethnic groups affected by the resettlement exercise. It was envisaged that a pragmatic approach to land and water resources management such as effective land use plans, natural resource monitoring plans, sensitization programs and rule of law are needed to avoid future conflicts over land resources use and to ensure people-centered development process is achieved.

Key Words: Land and Water Resources; Pastoralists; Agro-pastoralists; Conflicts; Resettlement.

INTRODUCTION

Wetlands contribute in diverse ways to the livelihoods of millions of people in Africa (Thorsell et al., 1997; McCartney & van Koppen, 2004; Kangalawe & Liwenga, 2005; NUFU, 2007). Wetlands cover about 6% of the world's land surface (Hook, 1988) whereas in Tanzania it covers about 10% of the land surface area, which is primarily utilized for producing diverse products for human consumption including crops and livestock (Hinde et al., 2001). Wetland ecosystem supports a wide diversity of species including fish, amphibian and a great abundance of waterfowl, hence supporting important levels of global biological diversity (Bergkamp & Orlando, 1999). However, continued encroachment largely from human perturbations into these important global ecological amenities has at different times called for immediate interventions to

reverse negatives actions against their sustainability. The Kilombero Valley Floodplain (KVFP) is not exceptional to the rampaging of human incursions.

KVFP is shared by Kilombero and Ulanga Districts in Morogoro Region, South-eastern part of Tanzania sandwiched between the Udzungwa Mountains and the Mahenge escapement, which are parts of the Eastern Arc Mountains (URT, 2010). It is regarded as an ecological bank with its abundant natural resources, including wetlands, wildlife and water catchment areas and forms Africa's largest river basin joining the Great Ruaha, Rufiji and Luwegu rivers. Further, KVFP is a large wetland endowed with various protected land and water resources including the Kilombero Ramsar Site, Teak forests, Udzungwa Mountains National Parks, Selous Game Reserves and Kilombero Game Controlled Area (KGCA) that serves as a wildlife corridor between the Selous Game Reserve and Mikumi and Udzungwa National Parks. Thus, the KVFP is an area of exceptional biodiversity protected and declared by UNESCO as World Heritage Site. The Valley houses many charismatic and important species including over 75% of the world remaining populations of puku antelope (*Kobus vardoni*) though the populations are being hunted unsustainably (Corti et al., 2002), zebra (E*quus quagga*), endemic species of crocodiles (*Crocodylus cataphractus*) and the colobus monkey (*Colobus* spp.). Other endowments include high populations of buffalo (*Syncerus caffer*), elephant (*Loxodonta africana*) and hippo (*Hippopotamus amphibious*) forming a unique and complex ecosystem with one of the highest wild mammal densities in Tanzania (Bonnington et al., 2007). Various bird species are also endemic in the KGCA including a large number of water bird species such as rufous winged sunbird, Kilombero weaver, melodious cisticola, Kilombero cisticola, Iringa akalat, dappled throated mountain robin and Udzungwa forest partridge (URT, 2010).

Presence of these attractive natural resources, fertile land, water resources, extensive grazing land, reliable rains and availability of large scale sugarcane plantations have attracted large concentration of both human being and livestock. The scenario, however, proved to have negative impact on the sustainability of natural resources including wildlife, forests, aquatic residents and water flows. The invasion of people into the KVFP has also led to violent and bloody conflicts between local peasants and the newcomers dominantly the pastoralists and/or agro-pastoralists based on conflicting use of the abundant land and water resources available in the basin. Besides, wildlife prosperity is constrained under such undue human and livestock encroachments. Several reports have indicated positive impact on wild ungulates with reduced human interferences. For instance, Hendricks et al. (2005) and Rannestad et al. (2006) reveal an increase in wild ungulate populations when livestock is removed, and this indicates the presence of negative competition between domestic and wild species.

Although the acts for managing fragile ecosystems such as wetlands were established in Tanzania in 1974, their frameworks, however dates back after World War II as an integral part of natural resource management and for the improvement of livelihood and ensures well-being of the people. This mandate has nonetheless been contravened to a larger extent due to natural resources

degradation influenced by exigencies caused by, but not limited to population pressure and its associated socio-economic activities as also reported by TNRF (2008). Exclusively, both the 1974 and 2009 Wildlife Acts prohibit inhabitation of human beings in the game reserves and national parks and the later Act also restricts human being inhabitation in the game controlled areas. It was therefore imperative as we act as trustees of these natural resources to ensure their effective management, which is the basis of attaining biodiversity conservation and sustainable development.

Conservation of natural resources such as water and land resources for the purpose of improving people's well-being and avoiding resource use conflicts is also in line with both global and national initiatives as addressed in Millennium Development Goals (MDGs) especially goal number seven (UN, 2010), Tanzania National Development Vision 2025 and National Strategy for Growth and Reduction of Poverty (NSGRP) commonly known by its Swahili acronym as MKUKUTA. All view attainment of sustainable development via proper resource management (URT, 2009). National Development Vision 2025 insists provision of enabling environment that is essential for the nation to flourish. These include peace, stability and security of citizens and their property, which constitute a fundamental and necessary environment for development (URT, 1999). MKUKUTA insists effective use of natural resources for ensuring socio-economic growth, which is also a subject matter in conservation (URT, 2009). Besides, the need to have sustainable natural resources is also well spelt in Ministry of Natural Resources and Tourism policies, Acts and regulations (URT, 1974; MNRT, 2007; 2009). These frameworks focus on effective conservation efforts as an important tool to ensure sustainability of the natural resource base, reinstate degraded landscapes and eventually avoid resource use conflicts hence improvement in people's livelihood.

Degradation of natural resources in Tanzania has continued despite presence of the legal frameworks. Illegal hunting, licensed hunting, land use change complexity, and intrusion of other human activities such as industry, slash and burn agriculture, overgrazing, lumbering and other forms of vegetation clearance all complicate the sustainability of natural resources including the wetland resource of the KVFP. Human encroachment around, at the border line and inside the game controlled area, game reserves and the Ramsar site irked the government and conservation authorities and decided to take actions to arrest the devastating ecological disaster. It must be noted that in August 2000, Tanzania ratified the Ramsar Convention of Wetlands of 1971 that stipulates wise use of wetland resources maintaining the ecological character of the site while contributing to people's livelihoods (URT, 2010). Due to its ecological importance, in April 2002, the Kilombero Valley Floodplain Ramsar Site was designated and added to the Ramsar Convention's List of Wetlands of international importance. In his inaugural address to the Parliament on December 30, 2005, the then President of the United Republic of Tanzania (URT) directed Morogoro regional authorities to resettle pastoralists and their livestock from the water catchments in order to save them from further environmental abuse. On April 1, 2006, the

then Vice-President of the URT, told pastoralists settled in game-protected areas, including the KVFP and mountains, to leave voluntarily, short of which they would be removed by force. However, both directives from the country's top leadership brass fell on deaf ears and the pastoralists continued to damage the environment willfully. Most of these pastoralists were said to hail from pastoral communities in Tabora, Shinyanga, Arusha, Mwanza and Mbeya Regions.

Following such socio-ecological devastations in the KVFP and elsewhere with similar fragile environment, the government of Tanzania decided to take actions of relocating the pastoralists and agro-pastoralists with their livestock from the KVFP. The government insisted that villagers were degrading the KVFP including the Ramsar Site which has rich biodiversity assets. This exercise however, was not only costly but also raised serious dissatisfactions from the resettles and at some points cohesive forces were above the tolerance bar. Some of the resettles described the exercise as inhuman as they claimed that it violated an earlier agreement on the exact points of beacons (The Guardian, 2012). This paper therefore provides an insight of the conflicts in land and water resources in the KVFP that led to the forced eviction of people from KVFP by conservation authorities.

OVERVIEW OF THE STUDY AREA

The Kilombero Valley, part of the Rufiji Basin of southern Tanzania, is located in the Ulanga and Kilombero Districts, Morogoro Region (Fig. 1). The Valley lies at the foot of the Great Escarpment of East Africa in the southern half of Tanzania, about 300 km from the coast (Kato, 2007). It covers an area of about 11,600 km^2 (including the marginal hills), with a total length of 250 km and width of up to 65 km. The elevation within the basin is about 300 m above sea level. Generally, the floodplain is humid with high temperatures ranging from 26ºC to 32ºC. Rainfall pattern is unimodal and very heavy and overall water levels in the Kilombero Valley tend to rise in November–April and fall smoothly from May onwards. Flood peaks tend to occur during March–April but can happen as early as January and as late as May and at that time accessibility can be very cumbersome. The annual rainfall ranges from 1,200 to 1,600 mm (URT, 2010).

The valley is rare and unique because it comprises a myriad of rivers and swampy, which make up the largest seasonally freshwater lowland floodplain in East Africa joining the Great Ruaha, Rufiji and Luwegu rivers. The KVFP is of global, regional, national and local importance in terms of its ecology and biodiversity. The site is a key feature in the Selous-Kilombero seasonal wildlife migrations, in which the population of crocodile and hippo in Kilombero links with that of Selous Game Reserve (GR). It also comprises the Kilombero Game Controlled Area (GCA), which is approximately 7,000 km^2 and the Kilombero Valley Ramsar Site (VRS), which covers 7,679 km^2. The KVFP also is known for its high diversity of fish species after Lakes Tanganyika, Nyasa and Victoria

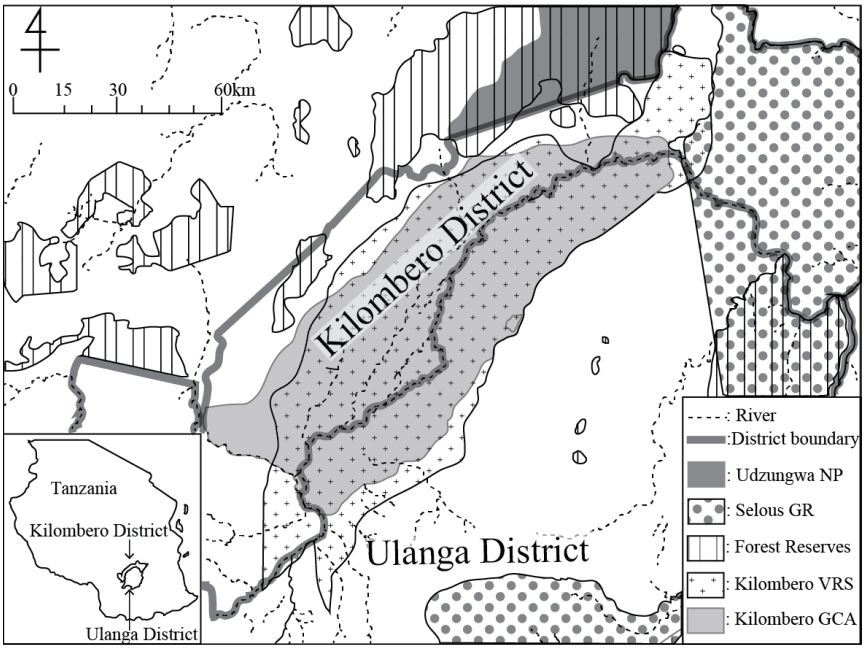

Fig. 1. Map of Tanzania showing distribution of the Kilombero Valley Floodplain

for water bodies away from shorelines. It is also prominent for tourists' attractions and has arable and fertile land suitable for agriculture whereby food and cash crops are grown. Other attractions include good and favorite climate and natural resources such as natural forests and mountains, perennial rivers.

The valley is characterized by miombo woodland mainly consisting of *Brachystegia* spp., and green forests covered with tall grasses such as elephant grass (*Penisetum purpureum*), guinea grass (*Panicum maximum*), *Hyparrhenia* spp. and reed (*Phragmites mauritianus*). It is typical fertile alluvial floodplain with loamy, clay, clay loamy and sandy soils and is an important source of nutrients and sediment for the downstream area. The KVFP used to have 38 permanent rivers which provided high potential for hydroelectric power (Kidatu and Kihansi Hydro power) and large irrigation schemes for sugarcane plantations. Many of these tributaries flow into the floodplain from the Mahenge Highlands located in the south of the valley.

Over 80% of the population in KVFP is engaged in agricultural production, which is predominantly subsistence. However, in recent years there has been an increasing transformation into more commercial. Rice, maize, peas, and bananas are the main food-cum-cash crops while sugarcane, sesame, sunflowers, rubber and cocoa are grown for commercial purposes. The area is also rich in various other crops including various types of vegetables (okra, *Amaranthus*, tomatoes, Chinese cabbage) and fruits (oranges, mangoes, pawpaw, and pineapples). Other

crops are sweet potatoes and cassava. Most of these crops are planted either on flat seedbed or on conventional ridges. Livestock keeping is another prominent economic activity and most livestock keepers are recent immigrants (pastoralists and agro-pastoralists). Fishing is also regarded as another economic activity even though not yet utilized to its full potential. It is undertaken along Kilombero River and in small swamps found in the Kilombero Valley.

The average population growth rates for the period of 1978 and 1988 to 2002 showed an increase from 3.4% to 3.9% and population density stood at 22 persons per km^2 in 2002 (URT, 2003). The indigenous people of Kilombero and Mahenge Districts are mainly of Bantu origin. There are three major ethnic groups; the Ndamba, Mbunga and Ngindo. Other minor ethnic groups include Pogoro, Hehe, and Bena. However, in recent years, the immigration of pastoralists and agro-pastoral like Maasai, Sukuma and Barbaigs into the basin has been observed, but also business people from all over the country.

SURVEY METHODS

The study adopted a multistage sampling design whereby different methods, materials and respondents were employed. These included the discussions with the Regional and District government officials responsible for land, environment and natural resource management, community development, and agriculture and livestock development. Others were senior officials from Government agencies such as Ramsar Site Project and Kilombero Water Basin Development Authority. Experienced retired officials in the field of natural resource management and community development were also engaged to provide their in-depth knowledge and experience about diachronic perspective of resource management in the KVFP. This group served for both Focus Group Discussions (FGD) and Key Informant interviews. Regional and district authorities were involved precisely because they are the overseers of all local government resources including wildlife, land and water and in most cases involved in arbitration of land use conflicts within their area of jurisdiction.

For an aerial survey, the exercise conducted a visual assessment of the Satellite imageries (Landsat ETM+ and FAO LCC) mainly covering the KGCA using the satellite Landsat TM images of 2004 to establish current distribution of KGCA and extent of encroachment. Overlay of the village points on the Satellite imageries was done to establish coverage of villages within the two KGCA. The use of aircraft was necessary so as to adjust GIS laboratory works before commencement of ground-truthing activities to ascertain observations from the images. It also helped to identify areas with wildlife, human activities, investments, agriculture, grazing and other land uses. Use of digital cameras was necessary to record various in-field observations. GPS points displaying different land uses were collected and displayed in the satellite image for spatial analysis.

Background information about resource use conflicts and resolution in KVFP were obtained from the Ministry of Natural Resources and Tourism, Ministry

of Land, Housing and Human Settlements, reports from respective regional and district authorities and searching from internet. The Kilombero Ramsar Site office provided invaluable information on possible future management based on their long experience in the area. Data from FGDs and Key informant interviews were broken down into smallest meaningful units of information, processed and subjected to content analysis to bring meaningful story trends of resource use in the KVFP.

EXISTING POTENTIAL AND THREATS TO KILOMBERO VALLEY FLOODPLAIN

The larger part of the KVFP is covered by KGCA and Kilombero Valley Ramsar Site. Until 2008, Wildlife Acts of 1974 allowed co-existence of wildlife and socio-economic activities including human settlements, agriculture and livestock keeping (URT, 1974). The Wildlife Conservation Act 2009, however, restricts this co-existence to protect the rich wildlife ungulates found in the area. Available arable land in the area has allowed over 80% of the population to engage into agricultural production and livestock keeping activities. The former has been recently transformed into commercialization. Various fishing opportunities are available. Fishing is undertaken in and along Kilombero River and in small swamps found in Kilombero valley. Mining activities is practiced in the area where two minerals; Gemstones and gold are mined. The minerals are found at Epanko, Mgolo, Lukande and Ligamba Forest Reserves. Lumbering and charcoal making both legal and illegal are also rampant. Commercial tree plantations include the Kilombero Valley Teak Company which had an area of about 22,891 ha of land planted with teak trees for commercial purpose. Other plantations with planted commercial teak plantations are Green Resources Ltd, Kilombero Sugar Company Ltd and Ifakara Roman Catholic Church.

Besides, both districts, Kilombero and Ulanga have several tourism attractions hotspots. These areas include the Uduzungwa National Parks—situated along Udzungwa Mountains, Sanje Falls—found in Udzungwa National Park, Selous Game Reserve situated along Kidatu and Mang'ula division and Kilombero Game controlled area—this area is used for tourist and local hunting where there are two tourist hunting blocks in Mngeta and Mlimba Divisions. Sport hunting can be conducted in Mofu, Mngeta, Merera, Mpanga, Utengule, Ipinde and Tanganyika areas. Sport fishing can be done in Ifakara, Ruhudji River, Mpanga River, Kihansi River, Mnyera River and many ponds in the valley. Resorts for Birds watching are located at Kibasila swamp Mofu, Ngapemba, Ndolo and Mende swamps, in various oxbow lakes around Kivukoni and Funga. Kihansi spray toad is an amphibian only found in Kilombero valley around Chisano Ward. Sanje red colobus monkey found only in the areas of Kilombero valley in areas of Chita nature reserve and in Magombera Forest currently used for research purpose only.

On ecological threat in the valley, some proportions of land have been put

under slash-and-burn practices for agricultural expansion and serious extensive grazing, especially in Malinyi, Lupilo and Mtimbira divisions. Poor agronomic practices especially the slash-and-burn agriculture with its shifting agriculture attribute has been blamed by different stakeholders to result into clearing of trees and shrubs in the field hence desertification and loss of habitats (TAWIRI, 2009; 2012). In recent years there has been large concentration of herds of cattle around the Kilombero Valley and this has resulted into overgrazing and destruction habitats and of water points. In addition, there has been a move in recent years by the government to provide agricultural inputs (agro-chemicals and fertilizers) as response to "Kilimo Kwanza" initiative for the purpose of making the region the main source of food for the country. "Kilimo Kwanza" literally mean in Swahili lingua franca as "Agriculture First," is a national initiative to transform agriculture in the country through modernization of the sector. Seepage of these agro-chemicals into land and water sources in this important valley possibly increases threats to wildlife conservation, aquatic life and other flora and fauna found rich in this valley.

Other challenges in the KVFP are related to encroachment from human settlements, overgrazing, illegal activities of hunting and fishing, bush fires especially during dry season and deforestation. Most rural people depend on fire wood as their main source of energy for cooking. According to Kilombero District (2009/2010) about 97.7% of the households in the District for instance, rely wholly or partly on wood fuels (firewood, charcoal and rice husk) for their energy needs. The district profile also indicated that, the rate of consumption of fuel wood exceeded the rate of natural growth, hence, further exploitation of the forest cover. Firewood is also used by private and public institutions such as boarding schools of Kwiro, Regina Mundi, St. Agness, St. Mary, Kasita, Kwiro Technical College and Mahenge Prison, as their chief source of fuel. On the other hand charcoal making is common to most rural communities as an alternative source of income; especially in, Lupiro, Malinyi, Mtimbira, Mwaya and Makanga divisions.

Fishing using illegal fishing gears which destroys fish breeding sites is also common in the valley. There are a number of fishing methods that are detrimental to the regeneration of the fishing stock. These include use of poison to kill fish, use small sized mesh nets to fish and blockage of rivers to fish. The motive behind using these techniques is quick catch. Apart from the ecological hazards of these methods, breeding grounds in these areas are completely destroyed. Furthermore, the increased demand for trees and grass for both smoking and packing of fish, construction of fishing boats puts pressure on the forest resources resulting in desertification and loss of habitat.

The mining industry by Epanko Gemstones Miners is affecting rivers especially the Ruaha River system and forest reserves because mining is practiced along rivers and washing sands in them hence affecting river volume and species distribution. Apart from river siltation, the use of cyanide and mercury chemicals to extract gold poses both environmental and health effects to people around the area. Certainly, poaching or illegal take off of wildlife and trophies has been

talk of the administration for quite sometimes now.

TAWIRI (2012) connotes that incomplete land use plans for some villages in the KVFP, poor livestock infrastructure, poor pasture improvement and improper livestock movements have complicated framework for sustainable resource use in the KVFP. Intense resource use conflicts between competing segments, poor institutional capacity, outbreak of livestock diseases and insufficient livestock breed have further mercerized the habitat in the floodplain.

HUMAN ECONOMIC ACTIVITIES VERSUS CONSERVATION EFFORTS IN THE KVFP

Both districts in the KVFP are important for livestock and agricultural productivity in the country and about 90–95% of their people largely depend on the two sectors. These sectors have registered abrupt development from 2000s especially after the coming of large number of agro-pastoralists with their oxenization technology. For instance Ulanga District (2009/2010) indicates that by 2009, the district had 162,000 cattle, 37,051 goats, 48,524 sheep and 411,123 chickens, which rose from a few hundred available before. The district also produced about 205,232 tons of rice and 74,916 tons of maize during the same period. Out of which 156,509 tons of rice (about 76% of the total produce) and 31,110 tons of maize (nearly 46% of total produce) were produced by cultivating from Kilombero Game Controlled Area (KGCA) and some parts of Selous Game Reserves (SGR), mainly from Malinyi, Mtimbira and Lupiro divisions. Both Kilombero District (2009/2010) and Ulanga District (2009/2010) indicate that most of the traditional residents in these two districts dwell their permanent settlements in villages but they exploit adjacent KGCA and SGR for agricultural and herding activities. But for the immigrants, they settle and conduct their economic activities (farming and livestock keeping) into the Ramsar site, the KGCA and SGR. They normally own and clear large tracts of land for both farming and grazing.

With increased immigration of people from different parts of the country in recent years, the agricultural and livestock sectors in these two districts have faced serious land scarcity problem. Abrupt expansion of these sectors have in turn complicated sustainable land use issues and environmental conservation efforts in the area especially due to weak institutional capacity to develop pragmatic framework to address natural resource management issues. For instance, district budgets, structures to accommodate burgeoning population of herders and their livestock and extension services are by far too weak to accommodate the complexity of land and water resource management under fast changing circumstances. Besides, other stakeholders have failed to ensure effective participation of the herders while planning for sustainable land uses exercise implemented in some 37 villages in these districts. This has led to most herders carry out their herding activities outside village lands, mostly in the KGCA and SGR. In Ulanga District, for instance, out of 18 villages that were under land

use planning exercise, stakeholders set aside an area enough for 13,154 cattle while the villages had more than 80,000 cattle which were being grazed into the KGCA and SGR (Ulanga District, 2009/2010). This scarcity of land for economic activities is also common to the agricultural sector leading the farmers and agro-pastoralists conduct their farming activities in the game reserves.

Indeed, conservation initiatives in the KVFP are diverse and complete package of success is constrained by multitude of challenges including but not limited to critical issues of land use conflicts more notably between wildlife versus agriculturalists and pastoralists; wildlife versus illegal hunting; government and hunting companies against other land users which in most cases is caused by the lack of land use plans in many villages. Inefficiencies and discrepancies in the past Policies, Acts and Regulations to ensure sustainable natural resource management under changing circumstances have by far put precedence into dilapidating status of natural resource conservation in the KVFP and other wetlands in the country. For instance conventional co-existence of wildlife and settlements and livestock jeopardize conservational status of the former. In fact there were no policies, acts and regulations that explicitly put in place strategies for effective natural resources management in the wetlands until late 2000s. Such loopholes paved a way for invasion of the wetlands more specifically by Sukuma and Maasai agro-pastoralists from Shinyanga, Arusha, Manyara, Mbeya, Rukwa and Singida Regions. Consequently, land use related conflicts between agriculturalists (the locals) and agro-pastoralists (immigrants) have become commonplaces. Conflicts between these two groups with hunting investors (hunting blocks) are also emerging.

FORCED RESETTLEMENT IN THE KVFP

The issues of land, water and other natural resources is one where ecological, political and economic, cultural and legal struggles intertwine, and where the local powers and less localized power structure interact, and where political and cultural symbols of powers and authority are brought into play (Derman et al., 2007). If management strategies of these resources are vague or lacks critical framework, then their utilization become the object of intense negotiation and conflict. Thus, to understand conflicts over and land and water resources is highly a complex process, which calls for analytical approaches informed by theories and concepts developed by different scholarly disciplines.

Conflict between pastoralists and indigenous farmers in the KVFP is a serious and has been experienced since 1980s. The conflicts occur when the pastoralists graze their cattle in the farms during dry and wet seasons when they move to look for water sources and pastures. This situation led to destruction of crops in farmland. In this case the farmers react on this tendency by killing some animals, fighting each other and raise serious conflict. In areas like Mofu, Utengule, Merera, Mkangawalo and Lungongole this situation of violent conflicts is a normal thing (Kilombero District, 2009/2010). Three multilayer conflicts

over land and water resources in the KVFP can be depicted. Conflicts between local famers versus pastoralists/agro-pastoralists and pastoralists versus agro-pastoralists especially when herders graze on their fellow herdsmen fields. Similarly, protected areas (Game Reserves, Game Controlled Areas and Ramsar Site) authorities and hunting companies are in constant conflicts with other groups of land users (farmers, agro-pastoralists and pastoralists). The two districts of Kilombero and Ulanga have witnessed increased number of livestock in recent years raise from a few hundreds to hundred thousand by 2009 (Kilombero District, 2009/2010; Ulanga District, 2009/2010). It must be noted that originally, people from these two districts were pure subsistence farmers and managed to raise a few livestock mainly chicken and duck. But incursion of agro-pastoralists and pastoralists from pastoral communities in Tabora, Shinyanga, Arusha, Manyara, Mwanza and Mbeya Arusha mainly from the late 1990s have increased the number of large animals especially cattle, goat, sheep and donkeys. This situation has promoted conflicts over the land and water resources and sometimes has let to violent crashes between these groups.

Agro-pastoralists and pastoralists have been attracted to move into KVFP largely due to availability of fertile land for agriculture, pasture land and ample water resources. Also lumbering, bush meat, fishing and bee keeping opportunities have made the area attractive by the immigrants. However, their resettlement into the KVFP has met stubborn resistant not only from the locals but also from the government. The Wildlife Act No. 9 of 2009, The Ramsar Site regulations and requirements and the Forestry Act of 2008 all have negative passion of human settlements and their economic activities within these fragile protected areas.

As a result, the government in 2012 decided to relocate 380,000 cattle from Kilombero Valley floodplain to pasture lands elsewhere. The resettlement team was forced to use helicopters to make sure that no herds of livestock were left in the Kilombero floodplains. The resettles livestock keepers were sent back to their original areas using trucks and a two months (October 31–December, 2012) operation incurred the government about 106.5 million Tsh (about 67,000 USD). The option to resettle herders came after expiry of the deadline that the herders were given to voluntarily vacate the basin. In fact, this process started in March 2012 when the government authorities started educating the herders on the importance of preserving the Kilombero valley basin, and they were given until September 8, 2012 to vacate the basin voluntarily. During the FGD and Key informants' interviews, government officials insisted that the herders were vacated under an operation aiming to save the valley from ecological degradation. The herders however had option that the operation was contempt of a court order preventing the government from carrying on with resettlement until a petition lodged at the high court land division was resolved. The court order was issued on November 21, 2012 preventing the government from resettling livestock keepers from Kilombero River Basin. Despite the court order, the Morogoro regional authorities reportedly ignored the order and went ahead with the herders' resettlement. The Morogoro regional administration insisted that they were

implementing resettlement orders issued by the President and the Vice-President in 2005 and 2006, respectively. In his inaugural address to Parliament on December 30, 2005, President Jakaya Kikwete directed Morogoro regional authorities to resettle pastoralists and their livestock from the water catchments in order to save them from further environmental abuse. On April 1, 2006, the then Vice-President, Dr. Ali Mohamed Shein, told pastoralists settled in game-protected areas, including the Kilombero Valley and mountains, to leave voluntarily, short of which they would be removed by force. This is what the Morogoro regional administration was implementing.

The resettlement exercise left 3,000 farmers and pastoralists from 31 villages landless and in an abject condition and was described by many villagers as inhuman, because it violated an earlier agreement reached in March 2010 on exact points of the beacons. Resettlers from earmarked villages for the first phase of the operation blamed the government for resettlement without allocating them new land for farming and/or grazing. However, the government insisted that the villagers were degrading the Ramsar-designated Kilombero valley floodplain which is rich in ecosystem and biodiversity assets. It was learnt during FGDs that in the past the valley had more than 38 rivers but today there are only 28 rivers due to farming and grazing activities. FGD and Key informant members also highlighted that apart from habouring one of the world's key populations of the wetland dependent Puku antelope, scientifically known as *Kobus vardonii* or *sheshe* in local lingua franca, the Valley flood plain also inhabits rare species of flora and fauna including the Kihansi Spray Toads, and numerous of rivers.

It was insisted during FGDs and Key Informant interviews that before the operation, both district governments in collaboration with land use experts, conducted a sensitization campaign and the villagers were explained the importance of the valley. During the process, those living in the Ramsar site were told to vacate, and their cattle were branded and beacons were put. On the other hand, villagers were shocked to learn on August 2012 that the government had shifted the demarcations (beacons) from their original place agreed earlier, thus taking more land from the villagers without their knowledge. For instance, they claimed that shifting the beacons left 74 and 100 farmers and livestock keepers landless in Ikule and Mkangawalo villages, respectively because it was done against the land use plan and agreement reached between the two parties on the beacons. Affected villagers also lamented that in 2010, the government and the village authorities agreed on points where the beacons should be put. However, in 2012, the government shifted the beacons and extended the area within the beacons further into farmers' land without their knowledge, a situation purported to likely to cause food insecurity as land for farming and grazing was reduced.

For the herders, when implementing the Ramsar project, the government conducted a sensitization campaign that was followed by a land use plan in some villages. The herders were given areas for grazing agreed number of cattle, while extra numbers of cattle were branded for 10,000 Tsh per animal as a

condition to keep their cattle in the area. However, pastoralist communities were shocked to learn that the agreement had been violated because even the branded cattle had been seized pending a fine (penalty). A herder from livestock keeping communities of Mgudeni Hamlet at Mkangawalo village said that, "Where cattle were branded, we were given receipts and we have them in our pockets, but the same cattle that had been branded were seized without telling us where to go." Another herder from the same hamlet commented that "seizing the cattle that were branded was contrary to the agreement. He said they use cattle as their bank, so arresting them was to subject them into abject poverty." The administration however denied all these allegations as baseless and unfolding and vowed to continue with the resettlement of all farmers and herders in the planned 7,967 km^2 Ramsar site. They insisted the rationale of the operation was part of the efforts to rescure the once very rich in ecosystem and biodiversity Kilombero valley which is now witnessing high level of degradation through reduced water levels, disappearing number of both animals and bird species due to extensive human perturbations including farming and grazing, illegal hunting, fishing and lumbering.

Complaints on shifting of the beacons were also discussed during FGDs and authorities insisted that the government in collaboration with the village authorities conducted awareness creation campaigns. A land use plan was done and the villagers were given enough time to cultivate, harvest and leave but they ignored the directive. They claimed that this operation had followed all the required processes and procedures. The government first identified legal cattle, branded them, and put beacons. Citing figures, they reckoned that in Kilombero District alone, 3,546 cattle were fined, each at 10,000 Tsh while 2,560 cattle were resettled, 21,371 auctioned to businessmen, and 52,000 cattle are expected to be removed from the district. Currently, the districts authorities of Kilombero and Ulanga are assessing and evaluate the operation and put in place sustainable strategies, including stationing game wardens to work with village leaders to monitor the situation and make sure that the farmers and livestock keepers and their herds do not go back.

The pastoralists had an opinion that the operation could have serious repercussion to food security in the area. The district authorities, however, insisted that the problem was not food security rather keeping large herds of cattle was a burden to the farmers and also to the ecology of many rivers that had started drying up. The government officials were content and vowed that they would not go back on the move and that it was better the resettled farmers and livestock keepers look for new places to start a new life. Likewise, other villagers living close to the valley have commended government initiative to remove invaders from the Ramsar site, saying that would restore the environment and increase food security. A resident of Njage village said that the resettlement of livestock keepers would relieve him of the pains he has suffered for so long because at times the pastoralists could graze their cattle in his farms and destroy crops. Another resident from the same village noted that in the past, when he was growing up, all the residents had norms and customs. They used to keep their

environment from degradation, but with the coming of livestock keepers and other external tribes into their lands, they crushed the tradition ways of life, thus causing massive degradation. He insisted "We had strong norms and customs. Nobody was allowed to trespass or dirty the rivers. If women were in their periods, they were also not allowed to go and do any activity in the rivers, but the building of the Tanzania-Zambia Railway line (TAZARA) has brought many foreigners who have contributed to this degradation," he said.

Those sympathized with resettled livestock keepers had the opinion that this operation would contribute to food shortage because of lack of milk and meat they used to get at cheap prices. In other accounts, some analysts purported that given the large number of foreign investors looking for land in Morogoro Region especially in Kilombero and Ulanga Districts this could partially explain the recent resettlement. An analyst who preferred anonymity pointed out that a major area of focus for Kilimo Kwanza initiative is the Southern Agriculture Growth Corridor of Tanzania (SAGCT) and other initiatives targeting the region, which might have compelled the government to expedite resettlement of farmers and livestock keepers, citing the need to restore the environment and protect rare species in the Ramsar site.

Certainly, the effects of this resettlement operation are diverse including loss of properties (livestock, crops and other household possessions), landlessness, hunger and starvation; increased resource use conflicts in the destinations and destitution hence creating another pool of hopelessness among already impoverished rural communities. Disturbances in schooling systems among the pastoral children, disturbed social networks, increased government spending, aggravated people's anger against own government, and other psychological tortures were sighted among serious concerns over the resettlement exercise. Those decided to leave before the forced resettlement faced long walks through game reserves putting their life and that of their livestock at risk against the wild animals. For them, fatigue after long walks, zoonosis, incidences of malaria, possibility of their animals feeding on crops and hurdles to cross over other administrative borders were rampart. Members from resettled villages also condemned the seizure of their household physical capital including oxen ploughs which they claim will compromise food security as they had no ability to purchase new ones or power tillers. It must be noted that recent endogenous development realized into this flood plain was contributed to a larger extent by emergence and use of oxen ploughs and tractors as also noted by Kato (2007). The efforts to realize food security and the Kilimo Kwanza initiative would also be compromised because some had taken loans from financial institutions which they cannot pay now that they have no land on which to farm and graze.

In fact, resettlement operations of the pastoral and agro-pastoral communities for the purpose of conserving fragile and fast degrading environment are not uncommon in Tanzania. Between 2006 and 2007 a number of agro-herding communities were resettled from Ihefu wetland in Mbarali District, Mbeya Region, South-Western Tanzania. This operation relocated thousands of families and their livestock from Mbarali in Mbeya to Lindi and Mtwara Regions in

southern Tanzania was as well branded by civil-society groups as gross violation of human rights. The relocation was meant to protect the Ihefu wetlands, which are in the Usangu Nature Reserve, a water catchment for Mtera Dam, which is the country's main hydroelectric power source. Ihefu, a catchment basin of Rufiji river in the Mbeya city, is also known as the Usangu wetland. Around 1,000 pastoralists, who collectively owned two million heads of cattle, were resettled from the basin between October 2006 and May 2007 (HAKIARDHI et al., 2007).

The resettled families during the Ihefu relocation operation had reportedly lost property and been subjected to harsh deprivations, while thousands of livestock died in the transfer operation as a result of poor logistics and lack of veterinary and other services. District authorities were also blamed of forcing herdsmen to sell cattle at prices as low as 40,000 Tsh (38 USD), while the actual market price for a healthy cow ranged from 120,000 Tsh (114 USD) to 300,000 Tsh (285 USD). It was also feared that tick-borne diseases and tsetse flies endemic to the destination regions would further cause massive livestock deaths in the absence of cattle dips and other infrastructure. An investigation by three non-governmental organizations—the Land Rights Research & Resources Institute (HAKIARDHI), the Pastoralist Indigenous NGOs Forum (PINGOs) and the Legal and Human Rights Centre (LHRC)—found that more than 10,000 cattle died of diseases and fatigue as there were no veterinary facilities like cattle dips in place in destination regions. For instance, Kilwa District in Lindi Region, alone, needed seven cattle dips, which would cost 27 million Tsh (25,700 USD) each, but the government had constructed only one which was again not functioning yet by that time. The district also needed 22 water reservoirs, which would cost 20 million Tsh (19,000 USD) each, but the district had only two such facilities.

Besides, most herding households suffered immense loss of property and harassment by uncorrupted government officials who extorted bribes to let them keep their livestock. In Mbarali, for instance, HAKIARDHI et al. (2007) report that herdsmen found with cattle were fined 10,000 Tsh (9 USD) per head of cattle, which was supposed to serve as a vaccination charge, whereas in fact cattle were not vaccinated. The cattle owners were also being made to pay costs of transporting their animals to the final destinations, and also had to pay village authorities along the way to have their cattle offloaded from trucks for a rest. At points of offloading, herdsmen were being forced to pay 300,000 Tsh (285 USD) to have their cattle accepted into the area.

CONCLUSIONS

The synoptic glance of land use conflicts due to increased human activities (especially livestock and extensive agricultural activities) in fragile KVFP has been discussed. The efforts by the government to rescue this important global habitat through resettlement and resettling of the herders and agro-pastoralists from KVFP have been elaborated. Legal and conservation frameworks especially after the enact of the Wildlife Management Act of 2009 from that of 1974 and

ratification of various biological conventions such as the Ramsar Site Convention of 1971 backed up government efforts to resettle the herders from KVFP. This prompted the government to carry out the forced resettlement operation in the KVFP in 2012. The resettlement exercise was hailed by the government, some local people around Kilombero Ramsar Site and conservationists as an important step to achieve sustainability of the KVFP. However, most of the herders, agro-pastoralists in the area and civil right societies described it as an act against humanity. These later groups were discontent on how the process of resettlement went through as they claimed that it lacked transparency and effective participation. They also claimed that very remote preparations if any were set at destinations most of which lacked basic facilities for both the herders and their livestock. Long walks to destinations with cumbersome regulations along the way coupled by foul play with elements of corruption from government officials were also lamented. Indeed, efforts to reinstate KVFP from further encroachment is not an overemphasis but these efforts must be inclusive and implemented while respecting basic human rights. Based on the importance of KVFP, a pragmatic framework for integrated resource management is needed to safeguard people's participation, improvement in the production systems and ensure realization of shared benefits. Importantly also is the need to increase awareness to the citizens so as to integrate them into resource management portfolio. Such an approach has the possibility of avoiding further crushes while inculcating conservation beacons and strengthening the endogenous development process as integral part of sustainable resource management.

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